

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: SPECTACLE POND	Lake Area (ha): 18.53
Town: GROTON	Maximum depth (m): 11.8
County: Grafton	Mean depth (m): 3.6
River Basin: Merrimack	Volume (m ³): 659500
Latitude: 43°42'37" N	Relative depth: 2.5
Longitude: 71°49'41" W	Shore configuration: 1.70
Elevation (ft): 820	Areal water load (m/yr): 4.58
Shore length (m): 2600	Flushing rate (yr ⁻¹): 1.30
Watershed area (ha): 139.8	P retention coeff.: 0.67
% watershed ponded: 0.0	Lake type: natural w/dam

BIOLOGICAL:

22 January 1997

15 August 1996

DOM. PHYTOPLANKTON (% TOTAL)	#1	DINOBRYON 60%	RHIZOSOLENIA 65%
	#2	(ALL ALGAE SPARSE)	ASTERIONELLA 15%
	#3		TABELLARIA 10%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			5.12
DOM. ZOOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	BOSMINA 22%
	#2		CALANOID COPEPOD 19%
	#3		HOLOPEDIDIUM 17%
ROTIFERS/LITER		2	7
MICROCRUSTACEA/LITER		13	29
ZOOPLANKTON ABUNDANCE (#/L)		15	36
VASCULAR PLANT ABUNDANCE			Scattered
SECCHI DISK TRANSPARENCY (m)			6.5
BOTTOM DISSOLVED OXYGEN (mg/L)		8.2	0.0
BACTERIA (E. coli, #/100 ml)	#1		< 1
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m):	7.0
Hypolimnion volume (m ³):	1400
Anoxic volume (m ³):	2900

CHEMICAL:

Lake: SPECTACLE POND
Town: GROTON

	22 January 1997		15 August 1996		
DEPTH (m)	3.0	6.0	3.0	8.0	11.0
pH (units)	6.0	5.5	6.0	5.6	6.2
A.N.C. (Alkalinity)	1.5	1.1	1.1	2.2	7.7
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.26	0.20	0.16	0.18	0.74
TOTAL PHOSPHORUS	0.011	0.009	0.008	0.010	0.023
CONDUCTIVITY (μ mhos/cm)	18.8	19.8	18.5	20.9	25.8
APPARENT COLOR (cpu)	10	10	5	10	50
MAGNESIUM			0.33		
CALCIUM			1.2		
SODIUM			< 1.0		
POTASSIUM			< 0.40		
CHLORIDE	< 2	< 2	< 2		< 2
SULFATE	4	4	4		3
TN : TP	24	22	20		32
CALCITE SATURATION INDEX			5.2		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1996

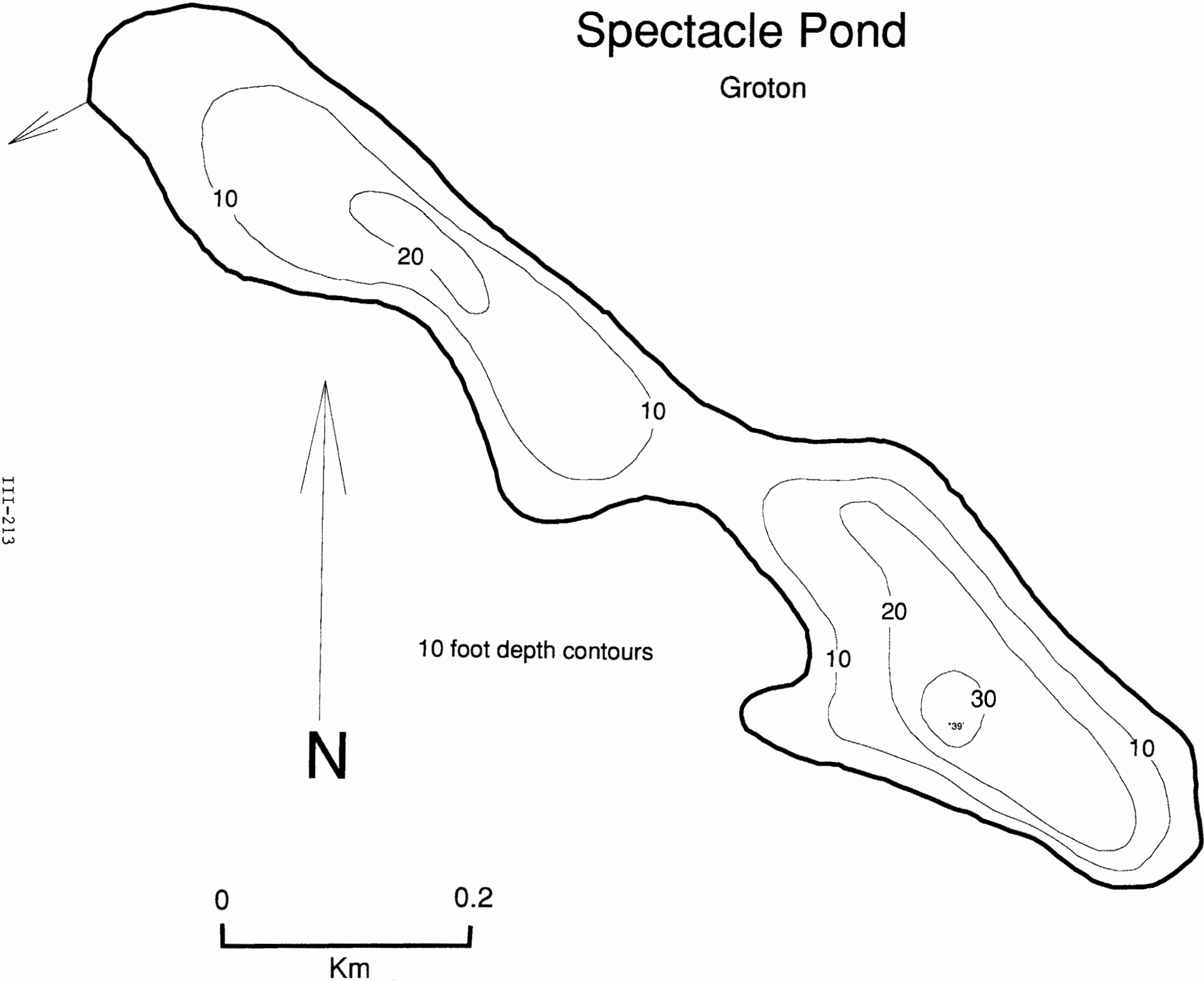
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	1	1	1	7	Meso.

COMMENTS:

1. Spectacle Pond was previously surveyed and classified in 1983. The major difference between the two years was in the bottom dissolved oxygen level during the summer. In 1996, there was no dissolved oxygen below 9 meters. In 1983, the dissolved oxygen was above 8 mg/L at 9 meters, and was 3.7 mg/L at 11 meters. This change resulted in moving Spectacle Pond from an oligotrophic to a mestotrophic rating. NOTE: one less trophic point in 1996 and the pond would have remained oligotrophic. The chlorophyll was up slightly and the water clarity was down slightly in 1996 as compared to 1983.
2. The outlet of Spectacle Pond has been sampled each spring and fall since 1983 as part of DES' acid rain monitoring program. There has been no trend in pH and a slightly increasing trend in ANC (from 0 to 1) over the monitoring period.
3. Spectacle Pond is a moderately acidic, clear-water pond with low ANC and low levels of ions.

Spectacle Pond

Groton



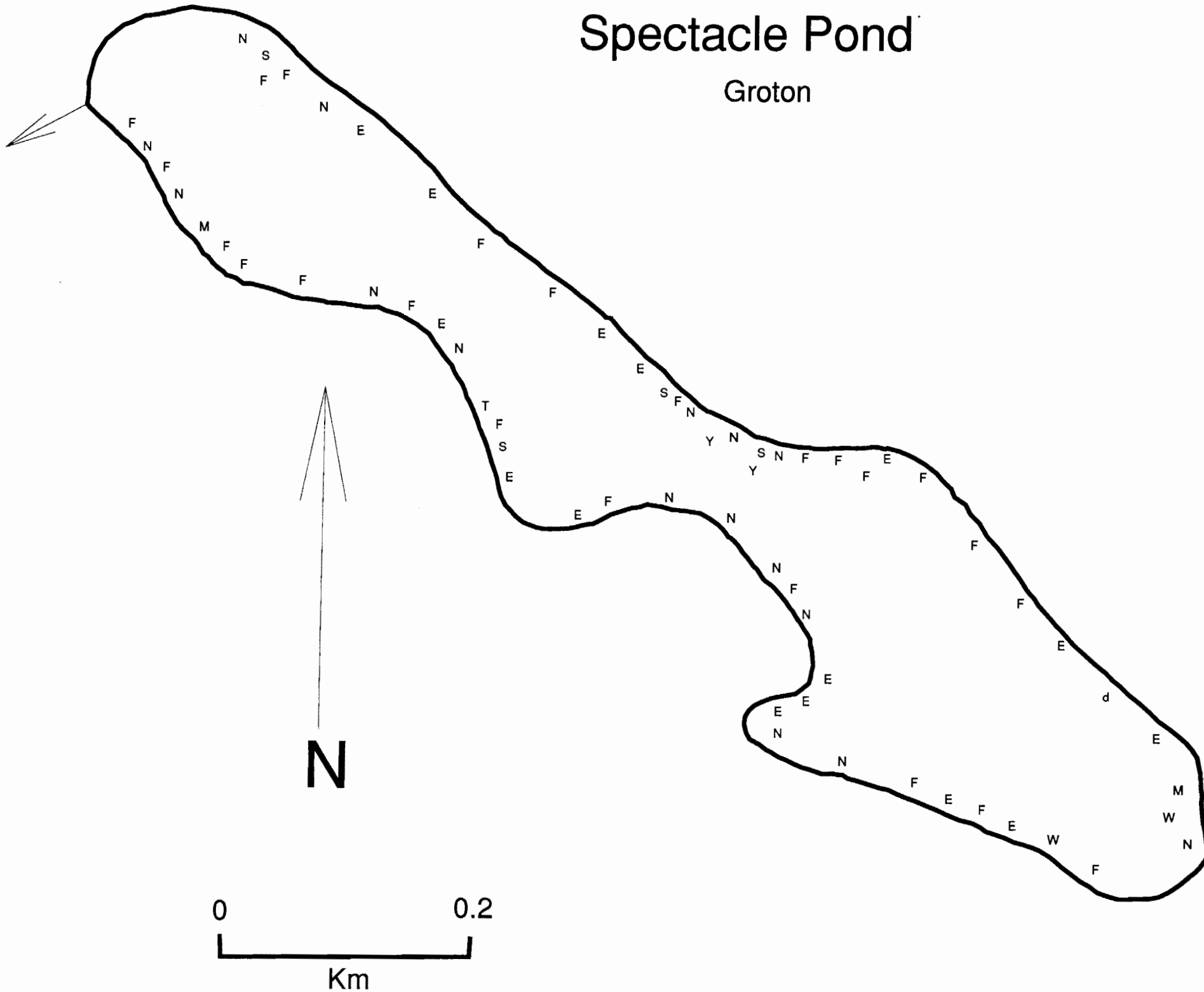
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Spectacle Pond

Groton

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